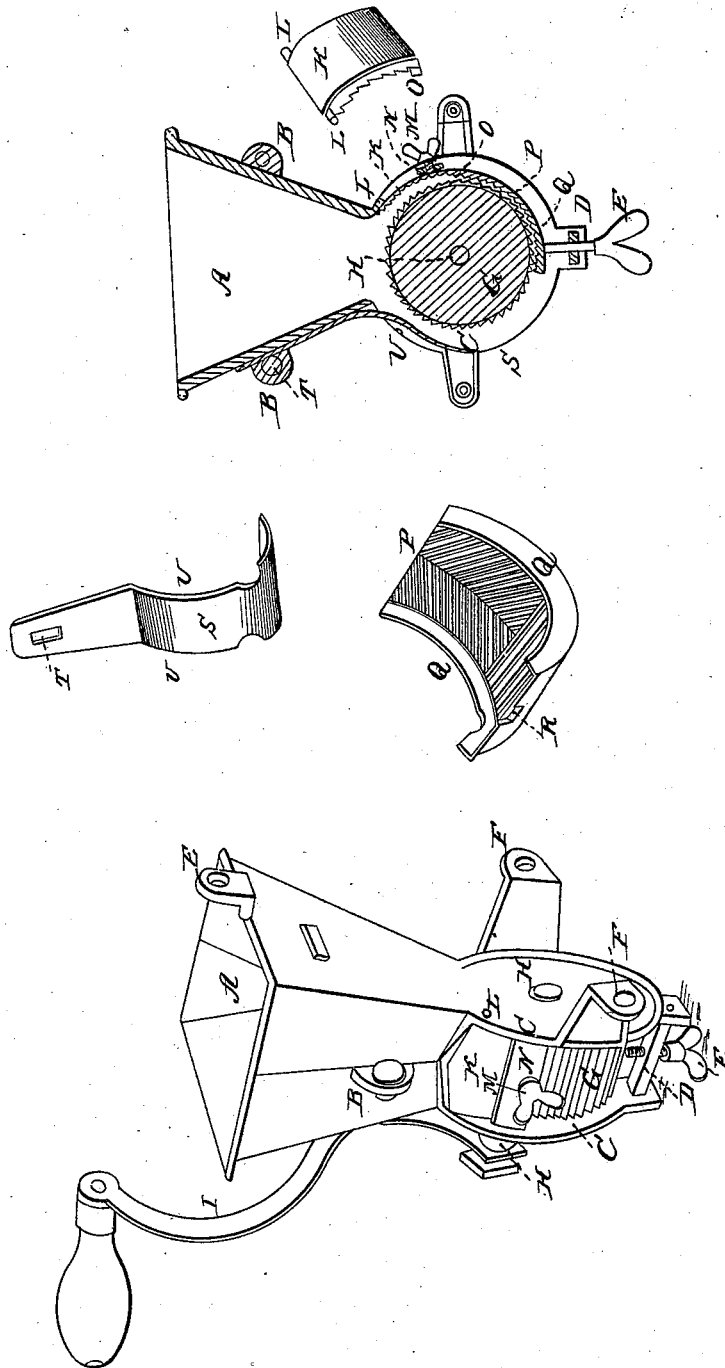


H. TWISS.

Coffee Mill.

No. 243.

Patented June 19, 1837.



# UNITED STATES PATENT OFFICE.

HIRAM TWISS, OF MERIDEN, CONNECTICUT.

## MILL FOR GRINDING COFFEE AND OTHER SUBSTANCES.

Specification of Letters Patent No. 243, dated June 19, 1837.

*To all whom it may concern:*

Be it known that I, HIRAM TWISS, of Meriden, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Mills for Grinding Coffee and other Substances, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

This mill is made of hard cast iron and malleable cast iron, except the clearer and handle.

A, represents the hopper made in two parts connected together by ears and bolts

B. C side plates between which the grinding cylinder revolves, being a continuation of the sides of the hopper; D, cross bar connecting the lower ends of the side plates together and through which a thumb screw E passes for pressing the shell or concave toward the cylinder and regulating the distance between them for grinding coarser or finer; F, ears through which screw bolts pass for securing the mill to any convenient place; G, the grinding cylinder about an inch and a half in length and about 2 and a half inches in diameter having a shaft H about 3 inches in length passing through its center and through the side plates C, extending beyond the face of the front plate one inch and three-eighths, and is three-fourths of an inch in diameter, to which a crank I is to be fitted in the usual manner. The other end of the shaft is  $\frac{3}{8}$  of an inch in diameter and forms a pivot or gudgeon passing through a corresponding hole in the plate.

In manufacturing the mill, the cylinder and shaft will be made solid—the ends of the cylinder being turned out so as to lighten it. The outside of the cylinder is covered with teeth or grinders three-sixteenths of an inch broad on the circumference of the cylinder and one-sixteenth of an inch deep, which teeth are formed by cutting the whole circumference of the cylinder into small triangles which may be placed in various directions, but I prefer them to be extended in parallel lines across the cylinder.

The cylinder is cast somewhat conical to give draft in molding, the end toward the crank being the smallest, the same end being turned off about one-eighth of an inch broad and below the base of the teeth; the other end has a rim or projection of the same width and extending to the circumference of

the teeth; this projection and depression rub upon corresponding guards in the concave hereafter described, for preventing their coming in contact.

At the lower end of the hopper at the back end and nearly at the top of the cylinder is a concave cracker or feeder, K, suspended by two projections L L cast on its upper corners swinging in corresponding apertures, in the side plates. The top of the cracker is placed about half an inch above the top of the cylinder. This constitutes the mouth of the machine and where it is fed; the other end swings loosely and is pressed toward the cylinder by a thumb screw M passing through a cross bar N for cracking the substance to be ground previously to passing into the concave and for regulating the feed of the mill. On the lower ends are guards O corresponding with the guards of the cylinder to prevent the lower end of the cracker coming in contact with the teeth of the cylinder. The teeth of the cracker are made similar to those on the cylinder and are placed in a reversed position to those in the upper part of the cracker. As a continuation of the grinding surface there extends from the lower end of the cracker a concave piece of cast iron P embracing about  $\frac{2}{3}$  of the circumference of the cylinder and which is called the shoe or shell. This shoe is about five inches long and as wide as the cylinder is long having a curb Q on each side to prevent the escape of the ground substance from the side of the mill. The concave surface is cast in teeth of a triangular shape, the first ten being in parallel lines and the rest diverging diagonally from the center to the sides in a herring bone shape and stand in opposition to those on the cylinder. The upper part of the concave is passed between the lower end of the cracker and the bar N against which it rests permanently, having a slot R through which the thumb screw passes to the cracker to prevent its interfering with the concave; the concave at the upper end is made thin which leaves a space between it and the cylinder of about  $\frac{3}{8}$  of an inch to receive the lower end of the cracker. The lower end of the cracker rests upon the point of the thumb screw E passing through the lower cross bar D which presses it toward the cylinder for regulating the space between it and the cylinder for coarser or finer grinding. At the ends of the teeth in the concave are

guards corresponding with those on the lower ends of the cylinder for preventing the teeth coming in contact. The lower cross bar is placed at a convenient distance 5 from the cylinder in order to allow of the thumb screw E being withdrawn for depressing the lower end of the concave so as to admit of the upper end being disengaged for the purpose of cleaning the concave.

10 S represents the clearer; this is used for the purpose of removing the ground substance from the channels of the cylinder and preventing its being returned again into the concave. It may be formed in various ways 15 and of different materials. I have sometimes used a piece of tin, a piece of leather, and a brush and found either would effect the object. I have also used a piece of leather made fast between two pieces of tin 20  $2\frac{1}{2}$  inches long and one-fourth of an inch wide secured by solder at each end and placed one eighth of an inch apart to receive the piece of leather. I now use a piece of sheet iron shaped in the manner represented 25 at S, and attached to the mill by having a mortise T in its upper end which is passed over the ears of the side pieces of the hopper before the bolt is inserted which secures them together; there being also two studs U 30 U or pins cast on the sides of the plates under which the convex part of the clearer is placed for shortening the spring of the clearer and pressing the curved end into the

notches of the cylinder. This clearer when 35 formed is connected with the mill so as to press with its curved end moderately upon the cylinder at the distance of half an inch from the end of the concave where the ground substance is discharged and is kept 40 in its place by the above mentioned mortise, ears and pin; or some other suitable means.

A great advantage attending this improvement is that the substance ground is received at one side of the cylinder and as soon as thoroughly ground is discharged at 45 the opposite side and is not as in common mills, carried around after it is ground and finally discharged by the pressure of the coarser materials and the increased motion of the cylinder; and hence both time and 50 labor are saved.

The invention claimed by the subscriber and which is desired to be secured by Letters Patent consists in—

The use and application of the clearer for 55 clearing the cylinder as before described, also the use and application of the cracker as herein set forth, likewise the use and application of the guards for preventing the 60 teeth of the cracker, shoe, and cylinder coming in contact in combination with the above described mill.

HIRAM TWISS.

Witnesses:

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D. J. BISHOP.